675	680	685

Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys

Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly 715

Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn 730

Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val

Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln 770 775 780

Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 785 790 795 800

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Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 820 825

Lys Gly His His His His His 835

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60

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Asp Ser Gln Gly Arg Ile Thr Ser His Leu Ser Gly Ile Leu Tyr Arg 50 55 60

Val Ser Asn Met Val Glu Val Gly Ile Arg Pro Val Phe Val Phe Asp 65 70 75 80

Gly Glu Pro Pro Glu Phe Lys Lys Ala Glu Ile Glu Glu Arg Lys Lys

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Tyr	Ile 130	Val	Asp	Ser	Ala	Lys 135	Thr	Leu	Leu	Ser	Tyr 140	Met	Gly	Ile	Pro
Phe 145	Val	Asp	Ala	Pro	Ser 150	Glu	Gly	Glu	Ala	Gln 155	Ala	Ala	Tyr	Met	Ala 160
Ala	Lys	Gly	Asp	Val 165	Glu	Tyr	Thr	Gly	Ser 170	Gln	Asp	Tyr	Asp	Ser 175	Leu
Leu	Phe	Gly	Ser 180	Pro	Arg	Leu	Ala	Arg 185	Asn	Leu	Ala	Ile	Thr 190	Gly	Lys
Arg	Lys	Leu 195	Pro	Gly	Lys	Asn	Val 200	Tyr	Val	Asp	Val	Lys 205	Pro	Glu	Ile
Ile	Ile 210	Leu	Glu	Ser	Asn	Leu 215	Lys	Arg	Leu	Gly	Leu 220	Thr	Arg	Glu	Gln
Leu 225	Ile	Asp	Ile	Ala	Ile 230	Leu	Val	Gly	Thr	Asp 235	Tyr	Asn	Glu	Gly	Val 240
Lys	Gly	Val	Gly	Val 245	Lys	Lys	Ala	Leu	Asn 250	Tyr	Ile	Lys	Thr	Tyr 255	Gly
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Glu	Glu	Ile 275	Arg	Asn	Phe	Phe	Leu 280	Asn	Pro	Pro	Val	Thr 285	Asp	Asp	Tyr
Arg	Ile 290	Glu	Phe	Arg	Glu	Pro 295	Asp	Phe	Glu	Lys	Ala 300	Ile	Glu	Phe	Leu
Cys 305	Glu	Glu	His	Asp	Phe 310	Ser	Arg	Glu	Arg	Val 315	Glu	Lys	Ala	Leu	Glu 320
Lys	Leu	Lys	Ala	Leu 325	Lys	Ser	Thr	Gln	Ala 330	Thr	Leu	Glu	Arg	Trp 335	Phe

Leu	Glu	Glu	Ala 340	Pro	Trp	Pro	Pro	Pro 345	Glu	Gly	Ala	Phe	Val 350	Gly	Phe
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Ala	Cys 370	Arg	Gly	Gly	Arg	Val 375	His	Arg	Ala	Ala	Asp 380	Pro	Leu	Ala	Gly
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Val	Leu	Ala	Ser	Arg 405	Glu	Gly	Leu	Asp	Leu 410	Val	Pro	Gly	Asp	Asp 415	Pro
Met	Leu	Leu	Ala 420	Tyr	Leu	Leu	Gly	Pro 425	Ser	Asn	Thr	Thr	Pro 430	Glu	Gly
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Ala	Leu 450	Leu	Ser	Glu	Arg	Leu 455	His	Arg	Asn	Leu	Leu 460	Lys	Arg	Leu	Glu
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Ala 545	Leu	Lys	Lys	Thr	Lys 550	Lys	Thr	Gly	Lys	Arg 555	Ser	Thr	Ser	Ala	Ala 560
Val	Leu	Glu	Ala	Leu 565	Arg	Glu	Ala	His	Pro 570	Ile	Val	Glu	Lys	575	Leu
Gln	His	Arg	Glu 580	Leu	Thr	Lys	Leu	Lys 585	Asn	Thr	Tyr	Val	Asp 590	Pro	Leu

Pro	Ser	Leu 595	Val	His	Pro	Arg	600	GIY	Arg	Leu	HIS	605	Arg	Pne	Asn
Gln	Thr 610	Ala	Thr	Ala	Thr	Gly 615	Arg	Leu	Ser	Ser	Ser 620	Asp	Pro	Asn	Leu
Gln 625	Asn	Ile	Pro	Val	Arg 630	Thr	Pro	Leu	Gly	Gln 635	Arg	Ile	Arg	Arg	Ala 640
Phe	Val	Ala	Glu	Ala 645	Gly	Trp	Ala	Leu	Val 650	Ala	Leu	Asp	Tyr	Ser 655	Gln
Ile	Glu	Leu	Arg 660	Val	Leu	Ala	His	Leu 665	Ser	Gly	Asp	Glu	Asn 670	Leu	Ile
Arg	Val	Phe 675	Gln	Glu	Gly	Lys	Asp 680	Ile	His	Thr	Gln	Thr 685	Ala	Ser	Trp
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Ala 705	Lys	Thr	Val	Asn	Phe 710	Gly	Val	Leu	Tyr	Gly 715	Met	Ser	Ala	His	Arg 720
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Glu	Arg	Tyr	Phe 740	Gln	Ser	Phe	Pro	Lys 745	Val	Arg	Ala	Trp	Ile 750	Glu	Lys
Thr	Leu	Glu 755	Glu	Gly	Arg	Lys	Arg 760	Gly	Tyr	Val	Glu	Thr 765	Leu	Phe	Gly
Arg	Arg 770	Arg	Tyr	Val	Pro	Asp 775	Leu	Asn	Ala	Arg	Val 780	Lys	Ser	Val	Arg
Glu 785	Ala	Ala	Glu	Arg	Met 790	Ala	Phe	Asn	Met	Pro 795	Val	Gln	Gly	Thr	Ala 800
Ala	Asp	Leu	Met	Lys 805	Leu	Ala	Met	Val	Lys 810	Leu	Phe	Pro	Arg	Leu 815	Arg
Glu	Met	Gly	Ala 820	Arg	Met	Leu	Leu	Gln 825	Val	Ala	Asn	Glu	Leu 830	Leu	Leu
Glu	Ala	Pro	Gln	Ala	Arg	Ala	Glu	Glu	Val	Ala	Ala	Leu	Ala	Lys	Glu

835 840 845

Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val 850 855 860

Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His 865 870 875 880

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840

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960

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<211> 873

<212> PRT

<213> Artificial Sequence

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<223> Synthetic

<400> 2817

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Tyr Gln Phe Ile Ser Ile Ile Arg Gln Pro Asp Gly Thr Pro Leu Lys 35 40 45

Asp Ser Gln Gly Arg Ile Thr Ser His Leu Ser Gly Ile Leu Tyr Arg 50 55 60

Val Ser Asn Met Val Glu Val Gly Ile Arg Pro Val Phe Val Phe Asp 65 70 75 80

Gly Glu Pro Pro Glu Phe Lys Lys Ala Glu Ile Glu Glu Arg Lys Lys 85 90 95

Arg Arg Ala Glu Ala Glu Glu Met Trp Ile Ala Ala Leu Gln Ala Gly
100 105 110

Asp Lys Asp Ala Lys Lys Tyr Ala Gln Ala Ala Gly Arg Val Asp Glu 115 120 125

Tyr Ile Val Asp Ser Ala Lys Thr Leu Leu Ser Tyr Met Gly Ile Pro 130 135 140

Phe Val Asp Ala Pro Ser Glu Gly Glu Ala Gln Ala Ala Tyr Met Ala 145 150 155 160

Ala Lys Gly Asp Val Glu Tyr Thr Gly Ser Gln Asp Tyr Asp Ser Leu 165 170 175

Leu Phe Gly Ser Pro Arg Leu Ala Arg Asn Leu Ala Ile Thr Gly Lys 180 185 190

Arg Lys Leu Pro Gly Lys Asn Val Tyr Val Asp Val Lys Pro Glu Ile 195 200 205

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Lys	Gly	Val	Gly	Val 245	Lys	Lys	Ala	Leu	Asn 250	Tyr	Ile	Lys	Thr	Tyr 255	Gly
Asp	Ile	Phe	Arg 260	Ala	Leu	Lys	Ala	Leu 265	Lys	Val	Asn	Ile	Asp 270	His	Val
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Arg	Ile 290	Glu	Phe	Arg	Glu	Pro 295	Asp	Phe	Glu	Lys	Ala 300	Ile	Glu	Phe	Leu
Cys 305	Glu	Glu -	His	Asp	Phe 310	Ser	Arg	Glu	Arg	Val 315	Glu	Lys	Ala	Leu	Glu 320
Lys	Leu	Lys	Ala	Leu 325	Lys	Ser	Thr	Leu	Glu 330	Glu	Ala	Pro	Trp	Pro 335	Pro
Pro	Glu	Gly	Ala 340	Phe	Val	Gly	Phe	Val 345	Leu	Ser	Arg	Pro	Glu 350	Pro	Met
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Pro	Ser	Asn	Thr 420	Thr	Pro	Glu	Gly	Val 425	Ala	Arg	Arg	Tyr	Gly 430	Gly	Glu
Trp	Thr	Glu 435	Asp	Ala	Ala	His	Arg 440	Ala	Leu	Leu	Ser	Glu 445	Arg	Leu	His
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Tyr 465	His	Glu	Val	Glu	Lys 470	Pro	Leu	Ser	Arg	Val 475	Leu	Ala	His	Met	Glu 480
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Ala	Gly	His 515	Pro	Phe	Asn	Leu	Asn 520	Ser	Arg	Asp	Gln	Leu 525	Glu	Arg	Val
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Gly 545	Lys	Arg	Ser	Thr	Ser 550	Ala	Ala	Val	Leu	Glu 555	Ala	Leu	Arg	Glu	Ala 560
His	Pro	Ile	Val	Glu 565	Lys	Ile	Leu	Gln	His 570	Arg	Glu	Leu	Thr	Lys 575	Leu
Lys	Asn	Thr	Tyr 580	Val	Asp	Pro	Leu	Pro 585	Ser	Leu	Val	His	Pro 590	Arg	Thr
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Leu	Ser 610	Ser	Ser	Asp	Pro	Asn 615	Leu	Gln	Asn	Ile	Pro 620	Val	Arg	Thr	Pro
Leu 625	Gly	Gln	Arg	Ile	Arg 630	Arg	Ala	Phe	Val	Ala 635	Glu	Ala	Gly	Trp	Ala 640
Leu	Val	Ala	Leu	Asp 645	Tyr	Ser	Gln	Ile	Glu 650	Leu	Arg	Val	Leu	Ala 655	His
Leu	Ser	Gly	Asp 660	Glu	Asn	Leu	Ile	Arg 665	Val	Phe	Gln	Glu	Gly 670	Lys	Asp
Ile	His	Thr 675	Gln	Thr	Ala	Ser	Trp 680	Met	Phe	Gly	Val	Pro 685	Pro	Glu	Ala
Val	Asp 690	Pro	Leu	Met	Arg	Arg 695	Ala	Ala	Lys	Thr	Val 700	Asn	Phe	Gly	Val
Leu	Tyr	Gly	Met	Ser	Ala	His	Arg	Leu	Ser	Gln	Glu	Leu	Ala	Ile	Pro

Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro $725 \hspace{1cm} 730 \hspace{1cm} 735$

Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg 740 745 750

Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu 755 760 765

Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe
770 780

Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met 785 790 795 800

Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu 805 810 815

Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu 820 825 830

Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu 835 840 845

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Ala Lys Gly His His His His His 865 870

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<212> DNA

<213> Artificial Sequence

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<211> 815

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<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2819

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Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala

Glu Lys Gl 130	u Gly Tyr	Glu Val 135		Ile Leu	Thr Ala		Lys	Asp	Leu
Tyr Gln Le 145	u Leu Ser	Asp Arg 150	Ile H	His Val	Leu His	Pro	Glu	Gly	Tyr 160
Leu Ile Th	r Pro Ala 165		Trp (Glu Lys 170	Tyr Gly	Leu	Arg	Pro 175	Asp
Gln Trp Al	a Asp Tyr 180	Arg Ala		Thr Gly 185	Asp Glu	Ser	Asp 190	Asn	Leu
Pro Gly Va		lle Gly	Glu I 200	_	Ala Arg	Lys 205	Leu	Leu	Glu
Glu Trp Gl 210	y Ser Leu	Glu Ala 215	Leu I	Leu Lys	Asn Let 220		Arg	Leu	Lys
Pro Ala Il 225	e Arg Glu	Lys Ile 230	Leu A	Ala His	Met Asp 235	Asp	Leu	Lys	Leu 240
Ser Trp As	p Leu Ala 245	-	Arg 1	Thr Asp 250	Leu Pro	Leu	Glu	Val 255	Asp
Phe Ala Ly	s Arg Arg 260	Glu Pro		Arg Glu 265	Gly Glu	. Lys	Pro 270	Arg	Glu
Glu Ala Pr 27	_	Pro Pro	Glu (280	Gly Ala	Phe Val	Gly 285	Phe	Leu	Leu
Ser Arg Pr 290	o Glu Pro	Met Trp 295	Ala (Glu Leu	Lys Ala		Ala	Ala	Cys
Arg Gly Gl 305	y Arg Val	His Arg 310	Ala A	Ala Asp	Pro Leu 315	ı Ala	Gly	Leu	Lys 320
Asp Leu Ly	s Glu Val 325		Leu I	Leu Ala 330	Lys Asp	Leu	Ala	Val 335	Leu
Ala Ser Ar	g Glu Gly 340	Leu Asp		Val Pro 345	Gly Asr	Asp	Pro 350	Met	Leu
Leu Ala Ty 35		Gly Pro	Ser <i>F</i> 360	Asn Thr	Thr Pro	Glu 365	Gly	Val	Ala

Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu 450	Val	Phe	Arg	Leu	Ala 455	Gly	His	Pro	Phe	Asn 460	Leu	Asn	Ser	Arg
Asp 465	Gln	Leu	Glu	Arg	Val 470	Leu	Phe	Asp	Glu	Leu 475	Arg	Leu	Pro	Ala	Leu 480
Lys	Lys	Thr	Lys	Lys 485	Thr	Gly	Lys	Arg	Ser 490	Thr	Ser	Ala	Ala	Val 495	Leu
Glu	Ala	Leu	Arg 500	Glu	Ala	His	Pro	Ile 505	Val	Glu	Lys	Ile	Leu 510	Gln	His
Arg	Glu	Leu 515	Thr	Lys	Leu	Lys	Asn 520	Thr	Tyr	Val	Asp	Pro 525	Leu	Pro	Ser
Leu	Val 530	His	Pro	Arg	Thr	Gly 535	Arg	Leu	His	Thr	Arg 540	Phe	Asn	Gln	Thr
Ala 545	Thr	Ala	Thr	Gly	Arg 550	Leu	Ser	Ser	Ser	Asp 555	Pro	Asn	Leu	Gln	Asn 560
Ile	Pro	Val	Arg	Thr 565	Pro	Leu	Gly	Gln	Arg 570	Ile	Arg	Arg	Ala	Phe 575	Val
Ala	Glu	Ala	Gly 580	Trp	Ala	Leu	Val	Ala 585	Leu	Asp	Tyr	Ser	Gln 590	Ile	Glu
Leu	Arg	Val 595	Leu	Ala	His	Leu	Ser 600	Gly	Asp	Glu	Asn	Leu 605	Ile	Arg	Val
Phe	Gln 610	Glu	Gly	Lys	Asp	Ile 615	His	Thr	Gln	Thr	Ala 620	Ser	Trp	Met	Phe

625 630 635 Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu 680 Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala 705 710 715 720 Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp 725 Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met 740 Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala 755 760 Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met 770 Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 790 Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His 805 <210> 2820 <211> 2520

Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

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<210> 2821

<211> 840

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2821

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Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val 50 55 60

Ile Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr 65 70 75 80

Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg 85 90 95

Gln	Leu	Ala	Leu 100	Val	Lys	Arg	Leu	Val 105	Asp	Leu	Leu	Gly	Leu 110	Val	Arg
Leu	Glu	Ala 115	Pro	Gly	Tyr	Glu	Ala 120	Asp	Asp	Val	Leu	Gly 125	Thr	Leu	Ala
Lys	Lys 130	Ala	Glu	Lys	Glu	Gly 135	Tyr	Glu	Val	Arg	Ile 140	Leu	Thr	Ala	Asp
Arg 145	Asp	Leu	Tyr	Gln	Leu 150	Val	Ser	Asp	Arg	Ile 155	His	Val	Leu	His	Pro 160
Glu	Gly	Tyr	Leu	Ile 165	Thr	Pro	Glu	Trp	Leu 170	Trp	Glu	Lys	Tyr	Gly 175	Leu
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Asp	Asn	Ile 195	Pro	Gly	Val	Lys	Gly 200	Ile	Gly	Glu	Lys	Thr 205	Ala	Ala	Lys
Leu	Ile 210	Arg	Glu	Trp	Gly	Ser 215	Leu	Glu	Asn	Leu	Leu 220	Lys	Asn	Leu	Asp
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Leu	Lys	Leu	Ser	Trp 245	Asp	Leu	Ala	Lys	Val 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Ala	Lys	Arg	Arg	Glu 265	Pro	Asp	Arg	Glu	Arg 270	Leu	Arg
Ala	Phe	Leu 275	Glu	Arg	Leu	Glu	Phe 280	Gly	Ser	Leu	Leu	His 285	Glu	Phe	Gly
Leu	Leu 290	Glu	Ser	Pro	Lys	Ala 295	Leu	Glu	Glu	Ala	Pro 300	Trp	Pro	Pro	Pro
Glu 305	Gly	Ala	Phe	Val	Gly 310	Phe	Val	Leu	Ser	Arg 315	Pro	Glu	Pro	Met	Trp 320
Ala	Glu	Leu	Lys	Ala 325	Leu	Ala	Ala	Cys	Arg 330	Gly	Gly	Arg	Val	His 335	Arg
Ala	Ala	Asp	Pro 340	Leu	Ala	Gly	Leu	Lys 345	Asp	Leu	Lys	Glu	Val 350	Arg	Gly

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Thr	Glu	Asp	Ala	Ala 405	His	Arg	Ala	Leu	Leu 410	Ser	Glu	Arg	Leu	His 415	Arg
Asn	Leu	Leu	Lys 420	Arg	Leu	Glu	Gly	Glu 425	Glu	Lys	Leu	Leu	Trp 430	Leu	Tyr
His	Glu	Val 435	Glu	Lys	Pro	Leu	Ser 440	Arg	Val	Leu	Ala	His 445	Met	Glu	Ala
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Leu 465	Ala	Glu	Glu	Ile	Arg 470	Arg	Leu	Glu	Glu	Glu 475	Val	Phe	Arg	Leu	Ala 480
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Pro	Ile 530	Val	Glu	Lys	Ile	Leu 535	Gln	His	Arg	Glu	Leu 540	Thr	Lys	Leu	Lys
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Val	Ala 610	Leu	Asp	Tyr	Ser	Gln 615	Ile	Glu	Leu	Arg	Val 620	Leu	Ala	His	Leu
Ser 625	Gly	Asp	Glu	Asn	Leu 630	Ile	Arg	Val	Phe	Gln 635	Glu	Gly	Lys	Asp	Ile 640
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Tyr	Gly	Met 675	Ser	Ala	His	Arg	Leu 680	Ser	Gln	Glu	Leu	Ala 685	Ile	Pro	Туз
Glu	Glu 690	Ala	Val	Ala	Phe	Ile 695	Glu	Arg	Tyr	Phe	Gln 700	Ser	Phe	Pro	Lys
Val 705	Arg	Ala	Trp	Ile	Glu 710	Lys	Thr	Leu	Glu	Glu 715	Gly	Arg	Lys	Arg	Gl _y 720
Tyr	Val	Glu	Thr	Leu 725	Phe	Gly	Arg	Arg	Arg 730	Tyr	Val	Pro	Asp	Leu 735	Asr
Ala	Arg	Val	Lys 740	Ser	Val	Arg	Glu	Ala 745	Ala	Glu	Arg	Met	Ala 750	Phe	Asr
Met	Pro	Val 755	Gln	Gly	Thr	Ala	Ala 760	Asp	Leu	Met	Lys	Leu 765	Ala	Met	Va]
Lys	Leu 770	Phe	Pro	Arg	Leu	Arg 775	Glu	Met	Gly	Ala	Arg 780	Met	Leu	Leu	Glr
Val 785	Ala	Asn	Glu	Leu	Leu 790	Leu	Glu	Ala	Pro	Gln 795	Ala	Arg	Ala	Glu	Glu 800
Val	Ala	Ala	Leu	Ala 805	Lys	Glu	Ala	Met	Glu 810	Lys	Ala	Tyr	Pro	Leu 815	Ala
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<211> 2445

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<212> PRT

<213> Artificial Sequence

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<223> Synthetic

<400> 2823

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser	Leu 50	Leu	Lys	Ala	Leu	Arg 55	Glu	Asp	Gly	Asp	Val 60	Val	Ile	Val	Val
Phe 65	Asp	Ala	Lys	Ala	Pro 70	Ser	Phe	Arg	His	Gln 75	Thr	Tyr	Glu	Ala	Tyr 80
Lys	Ala	Gly	Arg	Ala 85	Pro	Thr	Pro	Glu	Asp 90	Phe	Pro	Arg	Gln	Leu 95	Ala
Leu	Ile	Lys	Glu 100	Met	Val	Asp	Leu	Leu 105	Gly	Phe	Thr	Arg	Leu 110	Glu	Val
Pro	Gly	Phe 115	Glu	Ala	Asp	Asp	Val 120	Leu	Ala	Thr	Leu	Ala 125	Lys	Lys	Ala
Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Ala 140	Asp	Lys	Asp	Leu
Tyr 145	Gln	Leu	Leu	Ser	Asp 150	Arg	Ile	His	Val	Leu 155	His	Pro	Glu	Gly	Tyr 160
Leu	Ile	Thr	Pro	Ala 165	Trp	Leu	Trp	Glu	Lys 170	Tyr	Gly	Leu	Arg	Pro 175	Asp
Gln	Trp	Ala	Asp 180	Tyr	Arg	Ala	Leu	Thr 185	Gly	Asp	Glu	Ser	Asp 190	Asn	Leu
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Arg	Lys 205	Leu	Leu	Glu
Glu	Trp 210	Gly	Ser	Leu	Glu	Ala 215	Leu	Leu	Lys	Asn	Leu 220	Asp	Arg	Leu	Lys
Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Asp	Asp	Leu	Lys	Leu 240
Ser	Trp	Asp	Leu	Ala 245	Lys	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Glu	Lys	Pro 270	Arg	Glu
Glu	Ala	Pro 275	Trp	Pro	Pro	Pro	Glu 280	Gly	Ala	Phe	Val	Gly 285	Phe	Leu	Leu
Ser	Arg 290	Pro	Glu	Pro	Met	Trp 295	Ala	Glu	Leu	Lys	Ala 300	Leu	Ala	Ala	Cys

305	GIY	GIY	Arg	vai	310	Arg	Ala	AIA	Asp	315	шец	AIA	GIY	Бец	320
Asp	Leu	Lys	Glu	Val 325	Arg	Gly	Leu	Leu	Ala 330	Lys	Asp	Leu	Ala	Val 335	Leu
Ala	Ser	Arg	Glu 340	Gly	Leu	Asp	Leu	Val 345	Pro	Gly	Asp	Asp	Pro 350	Met	Leu
Leu	Ala	Tyr 355	Leu	Leu	Gly	Pro	Ser 360	Asn	Thr	Thr	Pro	Glu 365	Gly	Val	Ala
Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu 450	Val	Phe	Arg	Leu	Ala 455	Gly	His	Pro	Phe	Asn 460	Leu	Asn	Ser	Arg
Asp 465	Gln	Leu	Glu	Arg	Val 470	Leu	Phe	Asp	Glu	Leu 475	Arg	Leu	Pro	Ala	Leu 480
Lys	Lys	Thr	Lys	Lys 485	Thr	Gly	Lys	Arg	Ser 490	Thr	Ser	Ala	Ala	Val 495	Leu
Glu	Ala	Leu	Arg 500	Glu	Ala	His	Pro	Ile 505	Val	Glu	Lys	Ile	Leu 510	Gln	His
		515					520					525		Pro	
	530					535					540			Gln	
Ala	Thr	Ala	Thr	Gly	Arg	Leu	Ser	Ser	Ser	Asp	Pro	Asn	Leu	Gl'n	Asn

Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val 565 570 575

Ala Glu Ala Gly Trp Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu 580 585 590

Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val 595 600 605

Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe 610 620

Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys 625 630 635 640

Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser 645 650 655

Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg
660 665 670

Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu 675 680 685

Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg 690 695 700

Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala 705 710 715 720

Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp
725 730 735

Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met 740 745 750

Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Glu Ala 755 760 765

Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met 770 780

Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 785 790 795 800

Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His His 805 810 815

<210> 2824

<211> 2520

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2824 60 atqaattccq aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac ggccaccacc tggcctaccg caccttette gecetgaagg geeteaceae gageegggge 120 180 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct caaggaggac 240 ggggacgcgg tgatcgtggt ctttgacgcc aaggccccct ccttccgcca cgaggcctac ggggggtaca aggcgggccg ggcccccacc ccggaggact tcccccgcca gctcgccttg 300 gtcaagcggc tggtggacct tctgggcttt acccgcctcg aggccccggg gtacgaggcg 360 420 gacgacgtcc tgggcaccct ggccaagaag gccgaaaagg aggggtacga ggtgcgcatc ctcaccgccg accgcgacct ctaccaactc gtctccgacc gcatccacgt cctccacccc 480 gaggggtacc tcatcacccc ggagtggctt tgggagaagt atgggcttaa gccttcccag 540 600 tgggtggact accgggcctt ggccggggac ccttccgaca acatccccgg cgtgaagggc 660 atcggggaga agacggcggc caagctgatc cgggagtggg gaagcctgga aaacctcctc 720 aagaacctgg accggctgaa gcccgccatc cgggagaaga tcctggccca catggacgat 780 etgaagetet cetgggacet ggecaaggtg egeacegace tgeecetgga ggtggactte gccaaaaggc gggagcccga ccgggagagg cttagggcct ttctggagag gcttgagttt 840 900 ggcagcctcc tccacgagtt cggccttctg gaaagcccca aggccctgga ggaggccccc 960 tggccccgc cggaagggc cttcgtggc ttcgtcctct cccgccccga gcccatgtgg geggagetta aageeetgge egeetgeagg ggeggeegeg tgeaceggge ageagaceee 1020 1080 ttggcggggc taaaggacct caaggaggtc cggggcctcc tcgccaagga cctcgccgtc ttggcctcga gggagggct agacctcgtg cccggggacg accccatgct cctcgcctac 1140 etectgggee cetegaacae cacceegag ggggtggege ggegetaegg gggggagtgg 1200 acggaggacg ccgcccaccg ggccctcctc tcggagaggc tccatcggaa cctccttaag 1260 cgcctcgagg gggaggagaa gctcctttgg ctctaccacg aggtggaaaa gcccctctcc 1320

1380 cgggtcctgg cccatatgga ggccaccggg gtacggctgg acgtggccta ccttcaggcc ctttccctgg agcttgcgga ggagatccgc cgcctcgagg aggaggtctt ccgcttggcg 1440 ggccacccct tcaacctcaa ctcccgggac cagctggaaa gggtgctctt tgacgagctt 1500 1560 aggetteecq cettqaaqaa qacgaaqaag acaggcaage getecaccag egeegeggtg ctggaggccc tacgggaggc ccaccccatc gtggagaaga tcctccagca ccgggagctc 1620 accaagetea agaacaceta egtggacece eteccaagee tegtecacee gaggaeggge 1680 1740 cgcctccaca cccgcttcaa ccagacggcc acggccacgg ggaggcttag tagctccgac 1800 cccaacctgc agaacatccc cgtccgcacc cccttgggcc agaggatccg ccgggccttc 1860 gtggccgagg cgggttgggc gttggtggcc ctggactata gccagataga gctccgcgtc 1920 ctcgcccacc tctccgggga cgaaaacctg atcagggtct tccaggaggg gaaggacatc 1980 cacacccaga ccgcaagctg gatgttcggc gtccccccgg aggccgtgga ccccctgatg 2040 cgccgggcgg ccaagacggt gaacttcggc gtcctctacg gcatgtccgc ccataggctc teccaggage ttgccatece ctacgaggag geggtggeet ttatagageg ctacttecaa 2100 2160 agcttcccca aggtgcgggc ctggatagaa aagaccctgg aggaggggag gaagcggggc tacgtggaaa ccctcttcgg aagaaggcgc tacgtgcccg acctcaacgc ccgggtgaag 2220 2280 agcqtcaqqq aqqccqcqqa qcqcatqqcc ttcaacatgc ccgtccaggg caccgccgcc gacctcatga agctcgccat ggtgaagctc ttcccccgcc tccgggagat gggggcccgc 2340 atgetectee aggtegeeaa egageteete etggaggeee eecaagegeg ggeegaggag 2400 gtggcggctt tggccaagga ggccatggag aaggcctatc ccctcgccgt gcccctggag 2460 gtggaggtgg ggatggggga ggactggctt tccgccaagg gtcaccacca ccaccaccac 2520

<210> 2825

<211> 840

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2825

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu

30

Lys	Gly	Leu	Thr	Thr	Ser	Arg	Gly	Glu	Pro	Val	Gln	Ala	Val	Tyr	Gly
		35					40					45			

- Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val 50 55 60
- Ile Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr 65 70 75 80
- Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg 85 90 95
- Gln Leu Ala Leu Val Lys Arg Leu Val Asp Leu Leu Gly Phe Thr Arg 100 105 110
- Leu Glu Ala Pro Gly Tyr Glu Ala Asp Asp Val Leu Gly Thr Leu Ala
 115 120 125
- Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp 130 135 140
- Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Ile His Val Leu His Pro 145 150 155 160
- Glu Gly Tyr Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu 165 170 175
- Lys Pro Ser Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser 180 185 190
- Asp Asn Ile Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys 195 200 205
- Leu Ile Arg Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu Asp 210 225 220
- Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp 225 230 235 240
- Leu Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu 245 250 255
- Glu Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg 260 265 270

Ala	Phe	Leu 275	Glu	Arg	Leu	Glu	Phe 280	Gly	Ser	Leu	Leu	His 285	Glu	Phe	Gly
Leu	Leu 290	Glu	Ser	Pro	Lys	Ala 295	Leu	Glu	Glu	Ala	Pro 300	Trp	Pro	Pro	Pro
Glu 305	Gly	Ala	Phe	Val	Gly 310	Phe	Val	Leu	Ser	Arg 315	Pro	Glu	Pro	Met	Trp 320
Ala	Glu	Leu	Lys	Ala 325	Leu	Ala	Ala	Cys	Arg 330	Gly	Gly	Arg	Val	His 335	Arg
Ala	Ala	Asp	Pro 340	Leu	Ala	Gly	Leu	Lys 345	Asp	Leu	Lys	Glu	Val 350	Arg	Gly
Leu	Leu	Ala 355	Lys	Asp	Leu	Ala	Val 360	Leu	Ala	Ser	Arg	Glu 365	Gly	Leu	Asp
Leu	Val 370	Pro	Gly	Asp	Asp	Pro 375	Met	Leu	Leu	Ala	Tyr 380	Leu	Leu	Gly	Pro
Ser 385	Asn	Thr	Thr	Pro	Glu 390	Gly	Val	Ala	Arg	Arg 395	Tyr	Gly	Gly	Glu	Trp 400
Thr	Glu	Asp	Ala	Ala 405	His	Arg	Ala	Leu	Leu 410	Ser	Glu	Arg	Leu	His 415	Arg
Asn	Leu	Leu	Lys 420	Arg	Leu	Glu	Gly	Glu 425	Glu	Lys	Leu	Leu	Trp 430	Leu	Tyr
His	Glu	Val 435	Glu	Lys	Pro	Leu	Ser 440	Arg	Val	Leu	Ala	His 445	Met	Glu	Ala
Thr	Gly 450	Val	Arg	Leu	Asp	Val 455	Ala	Tyr	Leu	Gln	Ala 460	Leu	Ser	Leu	Glu
Leu 465	Ala	Glu	Glu	Ile	Arg 470	Arg	Leu	Glu	Glu	Glu 475	Val	Phe	Arg	Leu	Ala 480
Gly	His	Pro	Phe	Asn 485	Leu	Asn	Ser	Arg	Asp 490	Gln	Leu	Glu	Arg	Val 495	Leu
Phe	Asp	Glu	Leu 500	Arg	Leu	Pro	Ala	Leu 505	Lys	Lys	Thr	Lys	Lys 510	Thr	Gly
Lys	Arg	Ser 515	Thr	Ser	Ala	Ala	Val 520	Leu	Glu	Ala	Leu	Arg 525	Glu	Ala	His

Pro	Ile 530	Val	Glu	Lys	Ile	Leu 535	Gln	His	Arg	Glu	Leu 540	Thr	Lys	Leu	Lys
Asn 545	Thr	Tyr	Val	Asp	Pro 550	Leu	Pro	Ser	Leu	Val 555	His	Pro	Arg	Thr	Gly 560
Arg	Leu	His	Thr	Arg 565	Phe	Asn	Gln	Thr	Ala 570	Thr	Ala	Thr	Gly	Arg 575	Leu
Ser	Ser	Ser	Asp 580	Pro	Asn	Leu	Gln	Asn 585	Ile	Pro	Val	Arg	Thr 590	Pro	Leu
Gly	Gln	Arg 595	Ile	Arg	Arg	Ala	Phe 600	Val	Ala	Glu	Ala	Gly 605	Trp	Ala	Leu
Val	Ala 610	Leu	Asp	Tyr	Ser	Gln 615	Ile	Glu	Leu	Arg	Val 620	Leu	Ala	His	Leu
Ser 625	Gly	Asp	Glu	Asn	Leu 630	Ile	Arg	Val	Phe	Gln 635	Glu	Gly	Lys	Asp	Ile 640
His	Thr	Gln	Thr	Ala 645	Ser	Trp	Met	Phe	Gly 650	Val	Pro	Pro	Glu	Ala 655	Val
Asp	Pro	Leu	Met 660	Arg	Arg	Ala	Ala	Lys 665	Thr	Val	Asn	Phe	Gly 670	Val	Leu
Tyr	Gly	Met 675	Ser	Ala	His	Arg	Leu 680	Ser	Gln	Glu	Leu	Ala 685	Ile	Pro	Tyr
Glu	Glu 690	Ala	Val	Ala	Phe	Ile 695	Glu	Arg	Tyr	Phe	Gln 700	Ser	Phe	Pro	Lys
Val 705	Arg	Ala	Trp	Ile	Glu 710	Lys	Thr	Leu	Glu	Glu 715	Gly	Arg	Lys	Arg	Gly 720
Tyr	Val	Glu	Thr	Leu 725	Phe	Gly	Arg	Arg	Arg 730	Tyr	Val	Pro	Asp	Leu 735	Asn
Ala	Arg	Val	Lys 740	Ser	Val	Arg	Glu	Ala 745	Ala	Glu	Arg	Met	Ala 750	Phe	Asn
Met	Pro	Val 755	Gln	Gly	Thr	Ala	Ala 760	Asp	Leu	Met	Lys	Leu 765	Ala	Met	Val
Lys	Leu	Phe	Pro	Arg	Leu	Arg	Glu	Met	Gly	Ala	Arg	Met	Leu	Leu	Gln

780 770 775

Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 795

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala 810

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 825 820

Lys Gly His His His His His 835

<210> 2826

<211> 2445

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2826

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900 ggggccttcg tgggcttcct cctttcccgc cccgagccca tgtgggcgga gcttaaagcc 960 ctggccgcct gcaggggcgg ccgcgtgcac cgggcagcag accccttggc ggggctaaag gacctcaagg aggtccgggg cctcctcgcc aaggacctcg ccgtcttggc ctcgagggag 1020 1080 gggctagacc tcgtgcccgg ggacgacccc atgctcctcg cctacctcct gggcccctcg aacaccaccc ccgaggggt ggcgcggcgc tacggggggg agtggacgga ggacgccgcc 1140 caccgggccc tcctctcgga gaggctccat cggaacctcc ttaagcgcct cgagggggag 1200 1260 gagaagetee tttggeteta ceaegaggtg gaaaageeee teteeegggt cetggeeeat atggaggcca ccggggtacg gctggacgtg gcctaccttc aggccctttc cctggagctt 1320 1380 geggaggaga teegeegeet egaggaggag gtetteeget tggegggeea eeeetteaae 1440 ctcaactccc gggaccagct ggaaagggtg ctctttgacg agcttaggct tcccgccttg 1500 aagaagacga agaagacagg caagcgctcc accagcgccg cggtgctgga ggccctacgg 1560 gaggeceaec ceategtgga gaagateete cageaecggg ageteaecaa geteaagaae 1620 acctacgtgg accccctccc aagcctcgtc cacccgagga cgggccgcct ccacacccgc ttcaaccaga cggccacggc cacggggagg cttagtagct ccgaccccaa cctgcagaac 1680 atccccgtcc gcaccccctt gggccagagg atccgccggg ccttcgtggc cgaggcgggt 1740 1800 tgggcgttgg tggccctgga ctatagccag atagagctcc gcgtcctcgc ccacctctcc ggggacgaaa acctgatcag ggtcttccag gaggggaagg acatccacac ccagaccgca 1860 1920 agctggatgt teggegteec eeeggaggee gtggaeeeee tgatgegeeg ggeggeeaag 1980 acggtgaact tcggcgtcct ctacggcatg tccgcccata ggctctccca ggagcttgcc atcccctacg aggaggcggt ggcctttata gagcgctact tccaaagctt ccccaaggtg 2040 2100 cgggcctgga tagaaaagac cctggaggag gggaggaagc ggggctacgt ggaaaccctc 2160 ttcggaagaa ggcgctacgt gcccgacctc aacgcccggg tgaagagcgt cagggaggcc 2220 geggagegea tggcetteaa catgecegte cagggeaceg cegeegacet catgaagete 2280 gccatggtga agetettece eegecteegg gagatggggg eeegeatget eetecaggte 2340 gccaacgagc tectectgga ggccececaa gegegggeeg aggaggtgge ggetttggee 2400 aaggaggcca tggagaaggc ctatcccctc gccgtgcccc tggaggtgga ggtggggatg 2445 ggggaggact ggctttccgc caagggtcac caccaccacc accac

<210> 2827

<211> 815

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2827

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Glu Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val 100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu 130 135 140

Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp 165 170 175

Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu 195 200 205

Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys 210 220

225	АІА	тте	Arg	GIU	230	iie	ьеu	Ala	птъ	235	Asp	Asp	Беи	пур	240
Ser	Trp	Asp	Leu	Ala 245	Lys	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Glu	Lys	Pro 270	Arg	Glu
Glu	Ala	Pro 275	Trp	Pro	Pro	Pro	Glu 280	Gly	Ala	Phe	Val	Gly 285	Phe	Leu	Leu
Ser	Arg 290	Pro	Glu	Pro	Met	Trp 295	Ala	Glu	Leu	Lys	Ala 300	Leu	Ala	Ala	Cys
Arg 305	Gly	Gly	Arg	Val	His 310	Arg	Ala	Ala	Asp	Pro 315	Leu	Ala	Gly	Leu	Lys 320
Asp	Leu	Lys	Glu	Val 325	Arg	Gly	Leu	Leu	Ala 330	Lys	Asp	Leu	Ala	Val 335	Leu
Ala	Ser	Arg	Glu 340	Gly	Leu	Asp	Leu	Val 345	Pro	Gly	Asp	Asp	Pro 350	Met	Leu
Leu	Ala	Tyr 355	Leu	Leu	Gly	Pro	Ser 360	Asn	Thr	Thr	Pro	Glu 365	Gly	Val	Ala
Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu 450	Val	Phe	Arg	Leu	Ala 455	Gly	His	Pro	Phe	Asn 460	Leu	Asn	Ser	Arg
Asp	Gln	Leu	Glu	Ara	Val	Leu	Phe	Asp	Glu	Leu	Ara	Leu	Pro	Ala	Leu

Lys Lys Thr Lys Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu 485 490 495

Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His
500 505 510

Arg Glu Leu Thr Lys Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser 515 520 525

Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr 530 540

Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn 545 550 555 560

Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val
565 570 575

Ala Glu Ala Gly Trp Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu 580 585 590

Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val
595 600 605

Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe 610 615 620

Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys 625 630 635 640

Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser 645 650 655

Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg 660 665 670

Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu 675 680 685

Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg 690 695 700

Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala 705 710 715 720

Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp 725 730 735

Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met
740 745 750

Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Glu Ala 755 760 765

Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met 770 780

Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 785 790 795 800

Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His His 805 810

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<211> 2445

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 2828

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tcctgggacc	tggccaaggt	gcgcaccgac	ctgcccctgg	aggtggactt	cgccaaaagg	780
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gccaacgagc	tcctcctgga	ggccccccaa	gcgcgggccg	aggaggtggc	ggctttggcc	2340
aaggaggcca	tggagaaggc	ctatcccctc	gccgtgcccc	tggaggtgga	ggtggggatg	2400
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<210> 2829

<211> 815

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2829

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Glu Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Phe Thr Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu 130 135 140

Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp 165 170 175

Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu
195 200 205

GIU	210	GIÀ	ser	ьеи	GIU	215	ьеu	Leu	пур	ASII	220	Asp	ALG	пеп	цуъ
Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Asp	Asp	Leu	Lys	Leu 240
Ser	Trp	Asp	Leu	Ala 245	Lys	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Glu	Lys	Pro 270	Arg	Glu
Glu	Ala	Pro 275	Trp	Pro	Pro	Pro	Glu 280	Gly	Ala	Phe	Val	Gly 285	Phe	Leu	Leu
Ser	Arg 290	Pro	Glu	Pro	Met	Trp 295	Ala	Glu	Leu	Lys	Ala 300	Leu	Ala	Ala	Cys
Arg 305	Gly	Gly	Arg	Val	His 310	Arg	Ala	Ala	Asp	Pro 315	Leu	Ala	Gly	Leu	Lys 320
Asp	Leu	Lys	Glu	Val 325	Arg	Gly	Leu	Leu	Ala 330	Lys	Asp	Leu	Ala	Val 335	Leu
Ala	Ser	Arg	Glu 340	Gly	Leu	Asp	Leu	Val 345	Pro	Gly	Asp	Asp	Pro 350	Met	Leu
Leu	Ala	Tyr 355	Leu	Leu	Gly	Pro	Ser 360	Asn	Thr	Thr	Pro	Glu 365	Gly	Val	Ala
Arg	Arg 370	Tyr	Gly	Gly	Glu	Trp 375	Thr	Glu	Asp	Ala	Ala 380	His	Arg	Ala	Leu
Leu 385	Ser	Glu	Arg	Leu	His 390	Arg	Asn	Leu	Leu	Lys 395	Arg	Leu	Glu	Gly	Glu 400
Glu	Lys	Leu	Leu	Trp 405	Leu	Tyr	His	Glu	Val 410	Glu	Lys	Pro	Leu	Ser 415	Arg
Val	Leu	Ala	His 420	Met	Glu	Ala	Thr	Gly 425	Val	Arg	Leu	Asp	Val 430	Ala	Tyr
Leu	Gln	Ala 435	Leu	Ser	Leu	Glu	Leu 440	Ala	Glu	Glu	Ile	Arg 445	Arg	Leu	Glu
Glu	Glu	Val	Phe	Arg	Leu	Ala	Gly	His	Pro	Phe	Asn	Leu	Asn	Ser	Arg

Asp 465	Gln	Leu	Glu	Arg	Val 470	Leu	Phe	Asp	Glu	Leu 475	Arg	Leu	Pro	Ala	Leu 480
Lys	Lys	Thr	Lys	Lys 485	Thr	Gly	Lys	Arg	Ser 490	Thr	Ser	Ala	Ala	Val 495	Leu
Glu	Ala	Leu	Arg 500	Glu	Ala	His	Pro	Ile 505	Val	Glu	Lys	Ile	Leu 510	Gln	His
Arg	Glu	Leu 515	Thr	Lys	Leu	Lys	Asn 520	Thr	Tyr	Val	Asp	Pro 525	Leu	Pro	Ser
Leu	Val 530	His	Pro	Arg	Thr	Gly 535	Arg	Leu	His	Thr	Arg 540	Phe	Asn	Gln	Thr
Ala 545	Thr	Ala	Thr	Gly	Arg 550	Leu	Ser	Ser	Ser	Asp 555	Pro	Asn	Leu	Gln	Asn 560
Ile	Pro	Val	Arg	Thr 565	Pro	Leu	Gly	Gln	Arg 570	Ile	Arg	Arg	Ala	Phe 575	Val
Ala	Glu	Ala	Gly 580	Trp	Ala	Leu	Val	Ala 585	Leu	Asp	Tyr	Ser	Gln 590	Ile	Glu
Leu	Arg	Val 595	Leu	Ala	His	Leu	Ser 600	Gly	Asp	Glu	Asn	Leu 605	Ile	Arg	Val
Phe	Gln 610	Glu	Gly	Lys	Asp	Ile 615	His	Thr	Gln	Thr	Ala 620	Ser	Trp	Met	Phe
Gly 625	Val	Pro	Pro	Glu	Ala 630	Val	Asp	Pro	Leu	Met 635	Arg	Arg	Ala	Ala	Lys 640
Thr	Val	Asn	Phe	Gly 645	Val	Leu	Tyr	Gly	Met 650	Ser	Ala	His	Arg	Leu 655	Ser
Gln	Glu	Leu	Ala 660	Ile	Pro	Tyr	Glu	Glu 665	Ala	Val	Ala	Phe	Ile 670	Glu	Arg
Tyr	Phe	Gln 675	Ser	Phe	Pro	Lys	Val 680	Arg	Ala	Trp	Ile	Glu 685	Lys	Thr	Leu
Glu	Glu 690	Gly	Arg	Lys	Arg	Gly 695	Tyr	Val	Glu	Thr	Leu 700	Phe	Gly	Arg	Arg

705 710 715 720 Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp 725 Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met 740 Gly Ala Arq Met Leu Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met 790 Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His His 805 <210> 2830 <211> 2520 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> 60 atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 120 ggccaccacc tggcctaccg tacctttttt gccctgaagg gcctcaccac cagccggggg 180 gageeggtee aggeggtgta egggtttgee aagageettt tgaaggeget aagagaagae ggggacgcgg tgatcgtggt ctttgacgcc gaggccccct ccttccgcca cgaggcctac 240 ggggggtaca aggcggggcg ggctcccacc cccgaggact ttccccggca gcttgccctt 300 atcaaggage tggtggaeet cetggggttt accegeeteg aggteeeegg etacgaggeg 360 gacgacgttc tcgccaccct ggccaagaag gcggaaaagg aggggtacga ggtgcgcatc 420 480 ctcaccqccq acaaagacct ttaccaqctc ctttccgacc gcatccacqt cctccacccc 540 gaggggtacc tcatcacccc ggcctggctt tgggaaaagt acggcctgag gcccgaccag tgggccgact accgggccct gaccggggac gagtccgaca accttcccgg ggtcaagggc 600

Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala

ateggggaga agacegeect caageteete aaggagtggg ggageetgga ageeeteete aagaacetgg aceggetgaa geeegeeate egggagaaga teetggeeea catggaegat ctgaagctct cctgggacct ggccaaggtg cgcaccgacc tgcccctgga ggtggacttc gccaaaaggc gggagcccga ccgggagggg cttaaggcct ttttggagag gctggagttc ggcagcetce tecaegagtt eggeeteetg ggaggggaga ageeceggga ggaggeecee tggcccccgc cggaaggggc cttcgtgggc tttgtgcttt cccgcaagga gcccatgtgg geogatette tggeeetgge egeetgeagg ggeggeegeg tgeaeeggge ageagaeeee 1020 1080 ttggcggggc taaaggacct caaggaggtc cggggcctcc tcgccaagga cctcgccgtc ttggcctcga gggagggct agacctcgtg cccggggacg accccatgct cctcgcctac 1140 1200 ctcctgggcc cctcgaacac caccccgag ggggtggcgc ggcgctacgg gggggagtgg 1260 acggaggacg ccgcccaccg ggccctcctc tcggagaggc tccatcggaa cctccttaag 1320 cgcctcgagg gggaggagaa gctcctttgg ctctaccacg aggtggaaaa gcccctctcc 1380 egggteetgg cecatatgga ggecaeeggg gtaeggetgg aegtggeeta cetteaggee 1440 ettteeetgg agettgegga ggagateege egeetegagg aggaggtett eegettggeg 1500 ggccacccct tcaacctcaa ctcccgggac cagctggaaa gggtgctctt tgacgagctt 1560 aggetteceg cettgaagaa gacgaagaag acaggeaage getecaceag egeegeggtg ctggaggccc tacgggaggc ccaccccatc gtggagaaga tcctccagca ccgggagctc 1620 1680 accaagetea agaacaceta egtggacece eteceaagee tegtecacee gaggaeggge 1740 cgcctccaca cccgcttcaa ccagacggcc acggccacgg ggaggcttag tagctccgac eccaacetge agaacateee egteegeace ecettgggee agaggateeg eegggeette 1800 1860 gtggccgagg cgggttgggc gttggtggcc ctggactata gccagataga gctccgcgtc ctcgcccacc tctccgggga cgaaaacctg atcagggtct tccaggaggg gaaggacatc 1920 cacacccaga ccgcaagctg gatgttcggc gtcccccgg aggccgtgga ccccctgatg 1980 egeegggegg ccaagaeggt gaacttegge gteetetaeg geatgteege ccataggete 2040 tcccaggagc ttgccatccc ctacgaggag gcggtggcct ttatagagcg ctacttccaa 2100 2160 agcttcccca aggtgcgggc ctggatagaa aagaccctgg aggaggggag gaagcggggc 2220 tacgtggaaa ccctcttcgg aagaaggcgc tacgtgcccg acctcaacgc ccgggtgaag agegteaggg aggeegegga gegeatggee tteaacatge eegteeaggg caeegeegee 2280 gacctcatga agctcgccat ggtgaagctc ttcccccgcc tccgggagat gggggcccgc 2340 2400 atgetectee aggtegeeaa egageteete etggaggeee eecaagegeg ggeegaggag

660

720

780

840 900

960

2460

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<210> 2831

<211> 840

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2831

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Ala Val 50 55 60

Ile Val Val Phe Asp Ala Glu Ala Pro Ser Phe Arg His Glu Ala Tyr 65 70 75 80

Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg 85 90 95

Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg 100 105 110

Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala 115 120 125

Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp 130 135 140

Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro 145 150 155 160

Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu 165 170 175

Arg	Pro	Asp	Gln 180	Trp	Ala	Asp	Tyr	Arg 185	Ala	Leu	Thr	Gly	Asp 190	Glu	Ser
Asp	Asn	Leu 195	Pro	Gly	Val	Lys	Gly 200	Ile	Gly	Glu	Lys	Thr 205	Ala	Leu	Lys
Leu	Leu 210	Lys	Glu	Trp	Gly	Ser 215	Leu	Glu	Ala	Leu	Leu 220	Lys	Asn	Leu	Asp
Arg 225	Leu	Lys	Pro	Ala	Ile 230	Arg	Glu	Lys	Ile	Leu 235	Ala	His	Met	Asp	Asp 240
Leu	Lys	Leu	Ser	Trp 245	Asp	Leu	Ala	Lys	Val 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Ala	Lys	Arg	Arg	Glu 265	Pro	Asp	Arg	Glu	Gly 270	Leu	Lys
Ala	Phe	Leu 275	Glu	Arg	Leu	Glu	Phe 280	Gly	Ser	Leu	Leu	His 285	Glu	Phe	Gly
Leu	Leu 290	Gly	Gly	Glu	Lys	Pro 295	Arg	Glu	Glu	Ala	Pro 300	Trp	Pro	Pro	Pro
Glu 305	Gly	Ala	Phe	Val	Gly 310	Phe	Val	Leu	Ser	Arg 315	Lys	Glu	Pro	Met	Trp 320
Ala	Asp	Leu	Leu	Ala 325	Leu	Ala	Ala	Cys	Arg 330	Gly	Gly	Arg	Val	His 335	Arg
Ala	Ala	Asp	Pro 340	Leu	Ala	Gly	Leu	Lys 345	Asp	Leu	Lys	Glu	Val 350	Arg	Gly
Leu	Leu	Ala 355	Lys	Asp	Leu	Ala	Val 360	Leu	Ala	Ser	Arg	Glu 365	Gly	Leu	Asp
Leu	Val 370	Pro	Gly	Asp	Asp	Pro 375	Met	Leu	Leu	Ala	Tyr 380	Leu	Leu	Gly	Pro
Ser 385	Asn	Thr	Thr	Pro	Glu 390	Gly	Val	Ala	Arg	Arg 395	Tyr	Gly	Gly	Glu	Trp 400
Thr	Glu	Asp	Ala	Ala 405	His	Arg	Ala	Leu	Leu 410	Ser	Glu	Arg	Leu	His 415	Arg
Asn	Leu	Leu	Lys 420	Arg	Leu	Glu	Gly	Glu 425	Glu	Lys	Leu	Leu	Trp 430	Leu	Tyr

His	Glu	Val 435	Glu	Lys	Pro	Leu	Ser 440	Arg	Val	Leu	Ala	His 445	Met	Glu	Ala
Thr	Gly 450	Val	Arg	Leu	Asp	Val 455	Ala	Tyr	Leu	Gln	Ala 460	Leu	Ser	Leu	Glu
Leu 465	Ala	Glu	Glu	Ile	Arg 470	Arg	Leu	Glu	Glu	Glu 475	Val	Phe	Arg	Leu	Ala 480
Gly	His	Pro	Phe	Asn 485	Leu	Asn	Ser	Arg	Asp 490	Gln	Leu	Glu	Arg	Val 495	Leu
Phe	Asp	Glu	Leu 500	Arg	Leu	Pro	Ala	Leu 505	Lys	Lys	Thr	Lys	Lys 510	Thr	Gly
Lys	Arg	Ser 515	Thr	Ser	Ala	Ala	Val 520	Leu	Glu	Ala	Leu	Arg 525	Glu	Ala	His
Pro	Ile 530	Val	Glu	Lys	Ile	Leu 535	Gln	His	Arg	Glu	Leu 540	Thr	Lys	Leu	Lys
Asn 545	Thr	Tyr	Val	Asp	Pro 550	Leu	Pro	Ser	Leu	Val 555	His	Pro	Arg	Thr	Gly 560
Arg	Leu	His	Thr	Arg 565	Phe	Asn	Gln	Thr	Ala 570	Thr	Ala	Thr	Gly	Arg 575	Leu
Ser	Ser	Ser	Asp 580	Pro	Asn	Leu	Gln	Asn 585	Ile	Pro	Val	Arg	Thr 590	Pro	Leu
Gly	Gln	Arg 595	Ile	Arg	Arg	Ala	Phe 600	Val	Ala	Glu	Ala	Gly 605	Trp	Ala	Leu
Val	Ala 610	Leu	Asp	Tyr	Ser	Gln 615		Glu	Leu	Arg	Val 620	Leu	Ala	His	Leu
Ser 625	Gly	Asp	Glu	Asn	Leu 630	Ile	Arg	Val	Phe	Gln 635	Glu	Gly	Lys	Asp	Ile 640
His	Thr	Gln	Thr	Ala 645	Ser	Trp	Met	Phe	Gly 650	Val	Pro	Pro	Glu	Ala 655	Val
Asp	Pro	Leu	Met 660	Arg	Arg	Ala	Ala	Lys 665	Thr	Val	Asn	Phe	Gly 670	Val	Leu
ጥኒታ	Glv	Met	Ser	Δls	Hie	Δrα	T.e.11	Ser	Gln	Glu	Leu	Δla	Tle	Pro	Тут

675 680 685

Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys 690 695 700

Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly 705 710 715 720

Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn 725 730 735

Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val 755 760 765

Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln 770 780

Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 785 790 795 800

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala 805 810 815

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 820 825 830

Lys Gly His His His His His His 835 840

<210> 2832

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2832

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120

180 ccggtgcaga tggtctacgg cttcgcccgg agcctcctca aggccttgaa ggaggacgga caggcggtgg tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacgag 240 gcctacaagg cgggccgggc ccccaccccg gaggacttcc cccggcagct cgcccttatc 300 360 aaggagatgg tggacctttt gggcctggcg cgcctcgagg tcccgggcta cgaggcggac 420 gacgtteteg ceaccetgge caagaaggeg gaaaaggagg ggtacgaggt gegeateete accgccgacc gcgacctcta ccaactcgtc tccgaccgcg tcgccgtcct ccaccccgag 480 540 ggccacctca tcaccccgga gtggctttgg gagaagtacg gcctcaggcc ggagcagtgg gtggacttcc gcgccctcgt gggggacccc tccgacaacc tccccggggt caagggcatc 600 660 ggggagaaga cggcggccaa gctgatccgg gagtggggaa gcctggaaaa ccttcttaag 720 cacctggaac aggtgaaacc tgcctccgtg cgggagaaga tccttagcca catggaggac 780 ctcaagctat ccctggagct atcccgggtg cacacggact tgctccttca ggtggacttt 840 aaggccctgc gccgcaggac ccccgacctg gagggcctga gggcctttttt ggaggagctg 900 gagtteggea geeteeteea egagttegge eteetggagg eeceegeege ggeggaggaa gctccctggc cgcccccga gggagccttc gtggggtacg ttctttcccg ccccgagccc 960 1020 atgtgggcgg agcttaacgc cttggccgcc gcctggggcg gccgcgtgca ccgggcagca 1080 gacccettgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc geogtettgg cetegaggga ggggetagae etegtgeeeg gggaegaeee catgeteete 1140 1200 gcctacctcc tgggcccctc caacaccacc cccgaggggg tggcgcggcg ctacgggggg 1260 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1320 cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1380 eteteceggg teetggeeca catggaggee accggggtae ggetggaegt ggeetacett caggeeettt eeetggaget tgeggaggag ateegeegee tegaggagga ggtetteege 1440 1500 ttggcgggcc accccttcaa cctcaactcc cgggaccagc tggaaagggt gctctttgac 1560 gagettagge ttecegeett gaagaagaeg aagaagaeag geaagegete caceagegee gcggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg 1620 gageteacea ageteaagaa cacetaegtg gaceeeetee caageetegt eeaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 tecgaceeca acetgeagaa cateceegte egeaceeect tgggeeagag gateegeegg 1800 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1860 1920 cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag gacatccaca cccagaccgc aagetggatg ttcggcgtcc ccccggaggc cgtggacccc 1980

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<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2833

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Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu 65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Ala Arg Leu

Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Thr 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Arg
Asp 145	Leu	Tyr	Gln	Leu	Val 150	Ser	Asp	Arg	Val	Ala 155	Val	Leu	His	Pro	Glu 160
Gly	His	Leu	Ile	Thr 165	Pro	Glu	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Glu	Gln	Trp 180	Val	Asp	Phe	Arg	Ala 185	Leu	Val	Gly	Asp	Pro 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Ala	Lys	Leu
Ile	Arg 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Asn	Leu	Leu	Lys 220	His	Leu	Glu	Gln
Val 225	Lys	Pro	Ala	Ser	Val 230	Arg	Glu	Lys	Ile	Leu 235	Ser	His	Met	Glu	Asp 240
Leu	Lys	Leu	Ser	Leu 245	Glu	Leu	Ser	Arg	Val 250	His	Thr	Asp	Leu	Leu 255	Leu
Gln	Val	Asp	Phe 260	Lys	Ala	Leu	Arg	Arg 265	Arg	Thr	Pro	Asp	Leu 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Glu	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu

290 295 300
Pro Pro Glu Gly Ala Phe Val Gly Tyr Val Leu Ser Arg Pro Glu Pro

Phe Gly Leu Leu Glu Ala Pro Ala Ala Ala Glu Glu Ala Pro Trp Pro

Met Trp Ala Glu Leu Asn Ala Leu Ala Ala Ala Trp Gly Gly Arg Val

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val\$340\$ \$345\$ Leu Lys Asp Leu Lys Glu Val

315

Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	GIu	GIA
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Gly 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Leu 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530		Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700 Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp 725 Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 825 Ser Ala Lys Gly His His His His His

<210> 2834

<211> 2511

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

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<210> 2835

<211> 837

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2835

Met Glu Phe Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser	Leu 50	Leu	гÀз	Ala	Leu	Arg 55	GIU	Asp	GIÀ	Asp	60	vai	TIE	vai	vaı
Phe 65	Asp	Ala	Lys	Ala	Pro 70	Ser	Phe	Arg	His	Glu 75	Ala	Tyr	Gly	Gly	Tyr 80
Lys	Ala	Gly	Arg	Ala 85	Pro	Thr	Pro	Glu	Asp 90	Phe	Pro	Arg	Gln	Leu 95	Ala
Leu	Ile	Lys	Glu 100	Leu	Val	Asp	Leu	Leu 105	Gly	Leu	Ala	Arg	Leu 110	Glu	Val
Pro	Gly	Phe 115	Glu	Ala	Asp	Asp	Val 120	Leu	Ala	Thr	Leu	Ala 125	Lys	Lys	Ala
Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Gly 140	Asp	Arg	Asp	Leu
Tyr 145	Gln	Leu	Val	Ser	Asp 150	Arg	Val	Ala	Val	Leu 155	His	Pro	Glu	Gly	His 160
Leu	Ile	Thr	Pro	Glu 165	Trp	Leu	Trp	Glu	Lys 170	Tyr	Gly	Leu	Arg	Pro 175	Glu
Gln	Trp	Val	Asp 180	Tyr	Arg	Ala	Leu	Ala 185	Gly	Asp	Pro	Ser	Asp 190	Asn	Ile
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Arg	Lys 205	Leu	Leu	Glu
Glu	Trp 210	Gly	Ser	Val	Glu	Ala 215	Leu	Leu	Lys	Asn	Leu 220	Asp	Arg	Leu	Lys
Pro 225	Ala	Ile	Arg	Glu	Lys 230	Ile	Leu	Ala	His	Met 235	Glu	Asp	Leu	Lys	Leu 240
Ser	Leu	Glu	Leu	Ser 245	Arg	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Leu	Ala	Gln	Gly 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Gly	Leu	Lys	Ala 270	Phe	Leu
Glu	Arg	Leu 275	Glu	Phe	Gly	Ser	Leu 280	Leu	His	Glu	Phe	Gly 285	Leu	Leu	Glu
Ser	Pro	Val	Ala	Ala	Glu	Glu 295	Ala	Pro	Trp	Pro	Pro	Pro	Glu	Gly	Ala

9ne 305	vai	GIÀ	Tyr	vai	310	ser	Arg	PIO	GIU	315	Met	тър	AIA	Giu	320
Asn	Ala	Leu	Ala	Ala 325	Ala	Trp	Gly	Gly	Arg 330	Val	His	Arg	Ala	Ala 335	Asp
Pro	Leu	Ala	Gly 340	Leu	Lys	Asp	Leu	Lys 345	Glu	Val	Arg	Gly	Leu 350	Leu	Ala
Lys	Asp	Leu 355	Ala	Val	Leu	Ala	Ser 360	Arg	Glu	Gly	Leu	Asp 365	Leu	Val	Pro
Gly	Asp 370	Asp	Pro	Met	Leu	Leu 375	Ala	Tyr	Leu	Leu	Gly 380	Pro	Ser	Asn	Thr
Thr 385	Pro	Glu	Gly	Val	Ala 390	Arg	Arg	Tyr	Gly	Gly 395	Glu	Trp	Thr	Glu	Asp 400
Ala	Ala	His	Arg	Ala 405	Leu	Leu	Ser	Glu	Arg 410	Leu	His	Arg	Asn	Leu 415	Leu
Lys	Arg	Leu	Glu 420	Gly	Glu	Glu	Lys	Leu 425	Leu	Trp	Leu	Tyr	His 430	Glu	Val
Glu	Lys	Pro 435	Leu	Ser	Arg	Val	Leu 440	Ala	His	Met	Glu	Ala 445	Thr	Gly	Val
Arg	Leu 450	Asp	Val	Ala	Tyr	Leu 455	Gln	Ala	Leu	Ser	Leu 460	Glu	Leu	Ala	Glu
Glu 465	Ile	Arg	Arg	Leu	Glu 470	Glu	Glu	Val	Phe	Arg 475	Leu	Ala	Gly	His	Pro 480
Phe	Asn	Leu	Asn	Ser 485	Arg	Asp	Gln	Leu	Glu 490	Arg	Val	Leu	Phe	Asp 495	Glu
Leu	Arg	Leu	Pro 500	Ala	Leu	Lys	Lys	Thr 505	Lys	Lys	Thr	Gly	Lys 510	Arg	Ser
Thr	Ser	Ala 515	Ala	Val	Leu	Glu	Ala 520	Leu	Arg	Glu	Ala	His 525	Pro	Ile	Val
Glu	Lys 530	Ile	Leu	Gln	His	Arg 535	Glu	Leu	Thr	Lys	Leu 540	Lys	Asn	Thr	Tyr
Val	Asp	Pro	Leu	Pro	Ser	Leu	Val	His	Pro	Ara	Thr	Glv	Ara	Leu	His

Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser 565 570 575

Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg 580 585 590

Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val Ala Leu 595 600 605

Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp 610 620

Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln 625 630 635 640

Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro Leu 645 650 655

Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met 660 665 670

Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala 675 680 685

Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala 690 695 700

Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu 705 710 715 720

Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val 725 730 735

Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val 740 745 750

Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe 755 760 765

Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala Asn 770 780

Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala Ala 785 790 795 800 Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu 805 810 815

Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly His 820 825 830

His His His His His 835

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<210> 2837

<211> 831

<212> PRT

<213> Artificial Sequence

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<223> Synthetic

<400> 2837

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

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Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe Ala Arg
35 40 45

Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val Val 50 55 60

Phe Asp Ala Glu Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu Glu Val
100 105 110

Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 140

Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp 165 170 175

Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu 180 185 190

Ser Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu 195 200 205

Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys 210 220

Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys Leu 225 230 235 240

Ser	Leu	Glu	Leu	Ser 245	Arg	Val	Arg	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Ala	Lys	Arg 260	Arg	Glu	Pro	Asp	Arg 265	Glu	Arg	Leu	Arg	Ala 270	Phe	Leu
Glu	Arg	Leu 275	Glu	Phe	Gly	Ser	Leu 280	Leu	His	Glu	Phe	Gly 285	Pro	Leu	Glu
Ser	Pro 290	Arg	Ala	Ala	Glu	Glu 295	Ala	Pro	Trp	Pro	Pro 300	Pro	Glu	Gly	Ala
Phe 305	Val	Gly	Tyr	Val	Leu 310	Ser	Arg	Pro	Glu	Pro 315	Met	Trp	Ala	Glu	Leu 320
Asn	Ala	Leu	Ala	Ala 325	Ala	Arg	Gly	Gly	Arg 330	Val	His	Arg	Ala	Ala 335	Asp
Pro	Leu	Ala	Gly 340	Leu	Lys	Asp	Leu	Lys 345	Glu	Val	Arg	Gly	Leu 350	Leu	Ala
Lys	Asp	Leu 355	Ala	Val	Leu	Ala	Ser 360	Arg	Glu	Gly	Leu	Asp 365	Leu	Val	Pro
Gly	Asp 370	Asp	Pro	Met	Leu	Leu 375	Ala	Tyr	Leu	Leu	Gly 380	Pro	Ser	Asn	Thr
Thr 385	Pro	Glu	Gly	Val	Ala 390	Arg	Arg	Tyr	Gly	Gly 395	Glu	Trp	Thr	Glu	Asp 400
Ala	Ala	His	Arg	Ala 405	Leu	Leu	Ser	Glu	Arg 410	Leu	His	Arg	Asn	Leu 415	Leu
Lys	Arg	Leu	Glu 420	Gly	Glu	Glu	Lys	Leu 425	Leu	Trp	Leu	Tyr	His 430	Glu	Val
Glu	Lys	Pro 435	Leu	Ser	Arg	Val	Leu 440	Ala	His	Met	Glu	Ala 445	Thr	Gly	Val
Arg	Leu 450	Asp	Val	Ala	Tyr	Leu 455	Gln	Ala	Leu	Ser	Leu 460	Glu	Leu	Ala	Glu
Glu 465	Ile	Arg	Arg	Leu	Glu 470	Glu	Glu	Val	Phe	Arg 475	Leu	Ala	Gly	His	Pro 480
Phe	Asn	Leu	Asn	Ser	Arg	Asp	Gln	Leu	Glu 490	Arg	Val	Leu	Phe	Asp	Glu

Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys Thr Gly Lys Arg Ser 500 505 Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg 580 585 590 Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val Ala Leu 595 Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp 615 610 Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln 625 630 635 Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val 730 Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val

740 745 750

Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe 755 760 765

Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Gln Val Ala Asn 770 780

Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala Ala 785 790 795 800

Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu 805 810 815

Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly 820 825 830

<210> 2838

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2838

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120

180

240

300 360

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480

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600 660

720

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gacctcgccc aggg	gcggga gcccgaccgg	gaggggctta	gggccttcct	ggagaggctg	840
gagttcggca gccto	cctcca cgagttcggc	ctcctggagg	cccccgcccc	cctggaggag	900
geceetgge eeee	gccgga aggggccttc	gtgggcttcg	tcctctcccg	ccccgagccc	960
atgtgggcgg agct	taaagc cctggccgcc	tgcaggggcg	gccgcgtgca	ccgggcagca	1020
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caccac					2526

<210> 2839

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2839

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His	Glu	Val	Glu	Lys	Pro	Leu	Ser	Arg	Val	Leu	Ala	His	Met

Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys 500 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 520 Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 535 Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 560 545 550 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 600 Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 615 610 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 650 . Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 710 720 Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 825 Ser Ala Lys Gly His His His His His His <210> 2840 <211> 2526 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> 2840 atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe

695

690

700

tacgaggeet acaaggeggg gagggeeceg acceeegagg actteeceeg geagetegee 300 360 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc 420 480 atectcaceg cegacegega cetetaceaa etegteteeg acegegtege egteeteeae 540 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 660 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 780 gaagacetca ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 840 gacetegeee aggggeggga geeegacegg gaggggetta gggeetteet ggagaggetg 900 gagtteggea geeteeteea egagttegge eteetggagg eeceegeece eetggaggag 960 geocettgge coccgeegga aggggeette gtgggetteg teeteteeeg coccgageee 1020 atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg gccgcgtgca ccgggcagca gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 1140 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1200 gcctacctcc tgggcccctc caacaccacc cccgagggg tggcgcggcg ctacgggggg gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 1320 cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1380 ctctcccggg tcctggccca catggaggcc accggggtac ggcgggacgt ggcctacctt caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc 1440 1500 ttggcgggcc acccettcaa cetcaactee egggaceage tggaaagggt getetttgae 1560 gagettagge ttecegeett gaagaagaeg aagaagaeag geaagegete caceagegee 1620 geggtgetgg aggecetacg ggaggeeeac eccategtgg agaagateet eeageacegg 1680 gageteacea ageteaagaa cacetaegtg gaceceetee caageetegt ceaceegagg 1740 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1800 tecgacecca acetgeagaa cateceegte egeaceceet tgggceagag gateegeegg 1860 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1920 cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag gacatecaca eccagacege aagetggatg tteggegtee ecceggagge egtggacece 1980 2040 ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2100 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae

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<210> 2841

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2841

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu

Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln.	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu	Leu	Ala	Lys	Asp	Leu	Ala	Val	Leu	Ala	Ser	Arg	Glu	Gly

Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Gly 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Arg 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635 Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 710 720 Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 760 755 Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His 835 840 <210> 2842 <211> 2526

<212> DNA

<213> Artificial Sequence

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala

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Tyr	Glu	Ala	Tyr	Lys 85	Ala	Gly	Arg	Ala	Pro 90	Thr	Pro	Glu	Asp	Phe 95	Pro
Arg	Gln	Leu	Ala 100	Leu	Ile	Lys	Glu	Leu 105	Val	Asp	Leu	Leu	Gly 110	Phe	Thr
Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	.Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro 290 295 300

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Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
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Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
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His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
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Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560

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Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650	Phe	Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	Gly
Val	Leu	Tyr 675	Gly	Met	Ser	Ala	His 680	Arg	Leu	Ser	Gln	Glu 685	Leu	Ala	Ile
Pro	Tyr 690	Glu	Glu	Ala	Val	Ala 695	Phe	Ile	Glu	Arg	Tyr 700	Phe	Gln	Ser	Phe
Pro 705	Lys	Val	Arg	Ala	Trp 710	Ile	Glu	Lys	Thr	Leu 715	Glu	Glu	Gly	Arg	Lys 720
Arg	Gly	Tyr	Val	Glu 725	Thr	Leu	Phe	Gly	Arg 730	Arg	Arg	Tyr	Val	Pro 735	Asp
Leu	Asn	Ala	Arg 740	Val	Lys	Ser	Val	Arg 745	Glu	Ala	Ala	Glu	Arg 750	Met	Ala
Phe	Asn	Met 755	Pro	Val	Gln	Gly	Thr 760	Ala	Ala	Asp	Leu	Met 765	Lys	Leu	Ala
Met	Val 770	Lys	Leu	Phe	Pro	Arg 775	Leu	Arg	Glu	Met	Gly 780	Ala	Arg	Met	Leu
Leu 785	Gln	Val	Ala	Asn	Glu 790	Leu	Leu	Leu	Glu	Ala 795	Pro	Gln	Ala	Arg	Ala 800
Glu	Glu	Val	Ala	Ala	Leu	Ala	Lys	Glu	Ala	Met	Glu	Lys	Ala	Tyr	Pro

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Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835 840

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Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu 210 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu 225 230 235 240

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Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
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Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu

b

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 445

Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys 500 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590 Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600 Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp

730

Leu Asn Ala Arq Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly His His His His His His <210> 2846 <211> 2526 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg cacccgccac gccctgaagg gcctcaccac gagccggggc 120 qaaccqqtqc aqqcqtcta cqqcttcqcc aaqaqcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 300 tacgaggeet acaaggeggg gagggeeeg acceegagg actteceeg geagetegee ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 geggaegaeg ttetegeeae eetggeeaag aaggeggaaa aggaggggta egaggtgege 420 480 atecteaceg cegacegega cetetaceaa etegteteeg acegegtege egtecteeac

540 600

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Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Arg His Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly

Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Va]
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	GlΣ
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Gly 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Lev

His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	G1u 425	GIY	Glu	GIu	Lys	1430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Leu 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
Asp	Ile	His	Thr	Gln 645	Thr	Ala	Ser	Trp	Met 650	Phe	Gly	Val	Pro	Pro 655	Glu
Ala	Val	Asp	Pro 660	Leu	Met	Arg	Arg	Ala 665	Ala	Lys	Thr	Val	Asn 670	Phe	Gly

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835

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<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2848
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120

180

240

300

360

420 480

540

600

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780

840

900

960

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<210> 2849

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2849

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Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Arg Arg Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 . 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg	Gln	Leu	Ala 100	Leu	Ile	Lys	Glu	Leu 105	Val	Asp	Leu	Leu	Gly 110	Phe	Thr
Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val

Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Gly 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Leu 455	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser
Leu 465	Glu	Leu	Ala	Glu	Glu 470	Ile	Arg	Arg	Leu	Glu 475	Glu	Glu	Val	Phe	Arg 480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Lys	Lys	Thr 510	Lys	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly	Gln	Arg	Ile	Arg	Arg	Ala	Phe	Val	Ala	Glu	Ala	Gly	Trp

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835 840

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<211> 2514

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

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1500 cccttcaacc tcaactcccg ggaccagctg gaaagggtgc tctttgacga gcttaggctt 1560 cccgccttga agaagacgaa gaagacaggc aagcgctcca ccagcgccgc ggtgctggag gccctacggg aggcccaccc catcgtggag aagatcctcc agcaccggga gctcaccaag 1620 1680 ctcaagaaca cctacgtgga ccccctccca agcctcgtcc acccgaggac gggccgcctc 1740 cacacceget teaaccagae ggecaeggee aeggggagge ttagtagete egaecceaae ctgcagaaca tccccgtccg caccccttg ggccagagga tccgccgggc cttcgtggcc 1800 1860 gaggegggtt gggegttggt ggeeetggae tatageeaga tagageteeg egteetegee 1920 cacctctccg gggacgaaaa cctgatcagg gtcttccagg aggggaagga catccacacc 1980 cagaccgcaa gctggatgtt cggcgtcccc ccggaggccg tggaccccct gatgcgccgg 2040 gcggccaaga cggtgaactt cggcgtcctc tacggcatgt ccgcccatag gctctcccag 2100 gagettgeca teceetaega ggaggeggtg geetttatag agegetaett ecaaagette 2160 cccaaggtgc gggcctggat agaaaagacc ctggaggagg ggaggaagcg gggctacgtg gaaaccctct tcggaagaag gcgctacgtg cccgacctca acgcccgggt gaagagcgtc 2220 2280 agggaggccg cggagcgcat ggccttcaac atgcccgtcc agggcaccgc cgccgacctc 2340 atgaageteg ceatggtgaa getetteece egeeteeggg agatggggge eegeatgete 2400 ctccaggtcg ccaacgagct cctcctggag gccccccaag cgcgggccga ggaggtggcg gctttggcca aggaggccat ggagaaggcc tatcccctcg ccgtgcccct ggaggtggag 2460 2514 gtggggatgg gggaggactg gctttccgcc aagggtcacc accaccacca ccac

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<211> 838

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2851

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Arg Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

35

Phe 65	Asp	Ala	Lys	Ala	Pro 70	Ser	Phe	Arg	His	Gln 75	Thr	Tyr	Glu	Ala	Tyr 80
Lys	Ala	Gly	Arg	Ala 85	Pro	Thr	Pro	Glu	Asp 90	Phe	Pro	Arg	Gln	Leu 95	Ala
Leu	Ile	Lys	Glu 100	Met	Val	Asp	Leu	Leu 105	Gly	Leu	Glu	Arg	Leu 110	Glu	Val
Pro	Gly	Phe 115	Glu	Ala	Asp	Asp	Val 120	Leu	Ala	Thr	Leu	Ala 125	Lys	Lys	Ala
Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Ala 140	Asp	Arg	Asp	Leu
Tyr 145	Gln	Leu	Leu	Ser	Glu 150	Arg	Ile	Ser	Ile	Leu 155	His	Pro	Glu	Gly	Tyr 160
Leu	Ile	Thr	Pro	Glu 165	Trp	Leu	Trp	Glu	Lys 170	Tyr	Gly	Leu	Lys	Pro 175	Ser
Gln	Trp	Val	Asp 180	Tyr	Arg	Ala	Leu	Ala 185	Gly	Asp	Pro	Ser	Asp 190	Asn	Ile
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Ala	Lys 205	Leu	Ile	Arg
Glu	Trp 210	Gly	Ser	Leu	Glu	Asn 215	Leu	Leu	Lys	His	Leu 220	Glu	Gln	Val	Lys
Pro 225	Ala	Ser	Val	Arg	Glu 230	Lys	Ile	Leu	Ser	His 235	Met	Glu	Asp	Leu	Lys 240
Leu	Ser	Leu	Glu	Leu 245	Ser	Arg	Val	His	Thr 250	Asp	Leu	Leu	Leu	Gln 255	Val
Asp	Phe	Ala	Arg 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Lys 270	Ala	Phe

Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu 275 280 285

Glu	Ser 290	Pro	Val	Ala	Ala	G1u 295	Glu	Ala	Pro	Trp	300	Pro	Pro	GIU	GIY
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Ala
Asp	Pro	Leu	Ala 340	Gly	Leu	Lys	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Ser	Arg	Glu	Gly	Leu 365	Asp	Leu	Val
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Gly	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Asp	Ala	Ala	His	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	His	Arg	Asn 415	Leu
Leu	Lys	Arg	Leu 420	Glu	Gly	Glu	Glu	Lys 425	Leu	Leu	Trp	Leu	Tyr 430	His	Glu
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Gln	Ala	Leu	Ser 460	Leu	Glu	Leu	Ala
Glu 465	Glu	Ile	Arg	Arg	Leu 470	Glu	Glu	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480
Pro	Phe	Asn	Leu	Asn 485	Ser	Arg	Asp	Gln	Leu 490	Glu	Arg	Val	Leu	Phe 495	Asp
Glu	Leu	Arg	Leu 500	Pro	Ala	Leu	Lys	Lys 505	Thr	Lys	Lys	Thr	Gly 510	Lys	Arg
Ser	Thr	Ser 515	Ala	Ala	Val	Leu	Glu 520	Ala	Leu	Arg	Glu	Ala 525	His	Pro	Ile
Val	Glu 530	Lys	Ile	Leu	Gln	His 535	Arg	Glu	Leu	Thr	Lys 540	Leu	Lys	Asn	Thr

Tyr 545	Val	Asp	Pro	Leu	Pro 550	Ser	Leu	Val	His	555	Arg	Tnr	GIÀ	Arg	ьеи 560
His	Thr	Arg	Phe	Asn 565	Gln	Thr	Ala	Thr	Ala 570	Thr	Gly	Arg	Leu	Ser 575	Ser
Ser	Asp	Pro	Asn 580	Leu	Gln	Asn	Ile	Pro 585	Val	Arg	Thr	Pro	Leu 590	Gly	Gln
Arg	Ile	Arg 595	Arg	Ala	Phe	Val	Ala 600	Glu	Ala	Gly	Trp	Ala 605	Leu	Val	Ala
Leu	Asp 610	Tyr	Ser	Gln	Ile	Glu 615	Leu	Arg	Val	Leu	Ala 620	His	Leu	Ser	Gly
Asp 625	Glu	Asn	Leu	Ile	Arg 630	Val	Phe	Gln	Glu	Gly 635	Lys	Asp	Ile	His	Thr 640
Gln	Thr	Ala	Ser	Trp 645	Met	Phe	Gly	Val	Pro 650	Pro	Glu	Ala	Val	Asp 655	Pro
Leu	Met	Arg	Arg 660	Ala	Ala	Lys	Thr	Val 665	Asn	Phe	Gly	Val	Leu 670	Tyr	Gly
Met	Ser	Ala 675	His	Arg	Leu	Ser	Gln 680	Glu	Leu	Ala	Ile	Pro 685	Tyr	Glu	Glu
Ala	Val 690	Ala	Phe	Ile	Glu	Arg 695	Tyr	Phe	Gln	Ser	Phe 700	Pro	Lys	Val	Arg
Ala 705	Trp	Ile	Glu	Lys	Thr 710	Leu	Glu	Glu	Gly	Arg 715	Lys	Arg	Gly	Tyr	Val 720
Glu	Thr	Leu	Phe	Gly 725	Arg	Arg	Arg	Tyr	Val 730	Pro	Asp	Leu	Asn	Ala 735	Arg
Val	Lys	Ser	Val 740	Arg	Glu	Ala	Ala	Glu 745	Arg	Met	Ala	Phe	Asn 750	Met	Pro
Val	Gln	Gly 755	Thr	Ala	Ala	Asp	Leu 760	Met	Lys	Leu	Ala	Met 765	Val	Lys	Leu
Phe	Pro 770	Arg	Leu	Arg	Glu	Met 775	Gly	Ala	Arg	Met	Leu 780	Leu	Gln	Val	Ala
Asn	Glu	Leu	Leu	Leu	Glu	Ala	Pro	Gln	Ala	Arg	Ala	Glu	Glu	Val	Ala

785 790 795 800

Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly 820 825 830

His His His His His 835

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<211> 2514

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<213> Artificial Sequence

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<211> 838

<212> PRT

<213> Artificial Sequence

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<223> Synthetic

<400> 2853

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Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys
35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 135 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser 165 170 175

Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg 195 200 205

Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys 210 215 220

Pro 225	Ala	Ser	Val	Arg	Glu 230	Lys	Ile	Leu	Ser	His 235	Met	Glu	Asp	Leu	Lys 240
Leu	Ser	Leu	Glu	Leu 245	Ser	Arg	Val	His	Thr 250	Asp	Leu	Leu	Leu	Gln 255	Val
Asp	Phe	Ala	Arg 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Lys 270	Ala	Phe
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Ser 290	Pro	Val	Ala	Ala	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn-	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Ala
Asp	Pro	Leu	Ala 340	Gly	Leu	Lys	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Ser	Arg	Glu	Gly	Leu 365	Asp	Leu	Val
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Gly	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Asp	Ala	Ala	His	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	His	Arg	Asn 415	Leu
Leu	Lys	Arg	Leu 420	Glu	Gly	Glu	Glu	Lys 425	Leu	Leu	Trp	Leu	Tyr 430	His	Glu
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Gln	Ala	Leu	Ser 460	Leu	Glu	Leu	Ala
Glu 465	Glu	Ile	Arg	Arg	Leu 470	Glu	Glu	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480

Pro	Phe	Asn	Leu	Asn 485	Ser	Arg	Asp	Gln	Leu 490	Glu	Arg	Val	Leu	Phe 495	Asp
Glu	Leu	Arg	Leu 500	Pro	Ala	Leu	Lys	Lys 505	Thr	Lys	Lys	Thr	Gly 510	Lys	Arg
Ser	Thr	Ser 515	Ala	Ala	Val	Leu	Glu 520	Ala	Leu	Arg	Glu	Ala 525	His	Pro	Ile
Val	Glu 530	Lys	Ile	Leu	Gln	His 535	Arg	Glu	Leu	Thr	Lys 540	Leu	Lys	Asn	Thr
Tyr 545	Val	Asp	Pro	Leu	Pro 550	Ser	Leu	Val	His	Pro 555	Arg	Thr	Gly	Arg	Leu 560
His	Thr	Arg	Phe	Asn 565	Gln	Thr	Ala	Thr	Ala 570	Thr	Gly	Arg	Leu	Ser 575	Ser
Ser	Asp	Pro	Asn 580	Leu	Gln	Asn	Ile	Pro 585	Val	Arg	Thr	Pro	Leu 590	Gly	Gln
Arg	Ile	Arg 595	Arg	Ala	Phe	Val	Ala 600	Glu	Ala	Gly	Trp	Ala 605	Leu	Val	Ala
Leu	Asp 610	Tyr	Ser	Gln	Ile	Glu 615	Leu	Arg	Val	Leu	Ala 620	His	Leu	Ser	Gly
Asp 625	Glu	Asn	Leu	Ile	Arg 630	Val	Phe	Gln	Glu	Gly 635	Lys	Asp	Ile	His	Thr 640
Gln	Thr	Ala	Ser	Trp 645	Met	Phe	Gly	Val	Pro 650	Pro	Glu	Ala	Val	Asp 655	Pro
Leu	Met	Arg	Arg 660	Ala	Ala	Lys	Thr	Val 665	Asn	Phe	Gly	Val	Leu 670	Tyr	Gly
Met	Ser	Ala 675	His	Arg	Leu	Ser	Gln 680	Glu	Leu	Ala	Ile	Pro 685	Tyr	Glu	Glu
Ala	Val 690	Ala	Phe	Ile	Glu	Arg 695	Tyr	Phe	Gln	Ser	Phe 700	Pro	Lys	Val	Arg
Ala 705	Trp	Ile	Glu	Lys	Thr 710	Leu	Glu	Glu	Gly	Arg 715	Lys	Arg	Gly	Tyr	Val 720
Glu	Thr	Leu	Phe	Gly	Arg	Arg	Arg	Tyr	Val	Pro	Asp	Leu	Asn	Ala	Arg

705	730	735
725	130	133

Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro $740 \hspace{1.5cm} 745 \hspace{1.5cm} 750$

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765

Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala 770 780

Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala 785 790 795 800

Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly 820 825 830

His His His His His 835

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<211> 2514

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 2854

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540 ctgatcaccc cggagtggct ttgggagaag tatgggctta agccttccca gtgggtggac 600 taccgggcct tggccgggga cccttccgac aacatccccg gcgtgaaggg catcggggag aagacggcgg ccaagctgat ccgggagtgg ggaagcctgg aaaaccttct taagcacctg 660 gaacaggtga aacctgcctc cgtgcgggag aagatcctta gccacatgga ggacctcaag 720 780 ctatccctgg agctatcccg ggtgcacacg gacttgctcc ttcaggtgga cttcgcccgg cgccgggagc cggaccggga ggggcttaag gcctttttgg agaggctgga gttcggaagc 840 900 ctcctccacg agttcggcct gttggaaagc ccggtggcgg cggaggaagc tccctggccg 960 cccccgagg gagcettegt ggggtaegtt etttecegee eegageecat gtgggeggag cttaacgcct tggccgccgc ctggggcggc cgcgtgcacc gggcagcaga ccccttggcg 1020 1080 gggctaaagg acctcaagga ggtccggggc ctcctcgcca aggacctcgc cgtcttggcc tcgagggagg ggctagacct cgtgcccggg gacgacccca tgctcctcgc ctacctcctg 1140 ggcccctcca acaccaccc cgagggggtg gcgcggcgct acggggggga gtggacggag 1200 gacgccgccc accgggccct cctctcggag aggctccatc ggaacctcct taagcgcctc 1260 gagggggagg agaagctcct ttggctctac cacgaggtgg aaaagcccct ctcccgggtc 1320 ctggcccaca tggaggccac cggggtacgg ctggacgtgg cctaccttca ggccctttcc 1380 1440 ctggagcttg cggaggagat ccgccgcctc gaggaggagg tcttccgctt ggcgggccac 1500 cccttcaacc tcaactcccg ggaccagctg gaaagggtgc tctttgacga gcttaggctt 1560 cccgccttga agaagacgaa gaagacaggc aagcgctcca ccagcgccgc ggtgctggag gccctacggg aggcccaccc catcgtggag aagatcctcc agcaccggga gctcaccaag 1620 1680 ctcaagaaca cctacgtgga cccctccca agcctcgtcc acccgaggac gggccgcctc 1740 cacacceget teaaccagae ggccaeggce aeggggagge ttagtagete egaceceaae ctgcagaaca tccccgtccg caccccttg ggccagagga tccgccgggc cttcgtggcc 1800 1860 gaggegggtt gggegttggt ggeeetggae tatageeaga tagageteeg egteetegee 1920 cacctctccg gggacgaaaa cctgatcagg gtcttccagg aggggaagga catccacacc cagaccgcaa gctggatgtt cggcgtcccc ccggaggccg tggaccccct gatgcgccgg 1980 2040 geggecaaga eggtgaactt eggegteete taeggeatgt eegeceatag geteteeeag gagettgeca teceetaega ggaggeggtg geetttatag agegetaett ecaaagette 2100 2160 cccaaggtgc gggcctggat agaaaagacc ctggaggagg ggaggaagcg gggctacgtg 2220 gaaaccctct tcggaagaag gcgctacgtg cccgacctca acgcccgggt gaagagcgtc 2280 agggaggeeg eggagegeat ggeetteaac atgeeegtee agggeacege egeegaeete 2340

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Thr	Thr	Ser 35	Arg	Gly	Glu	Pro	Val 40	Gln	Ala	Val	Tyr	Gly 45	Phe	Ala	Lys	
Ser	Leu 50	Leu	Lys	Ala	Leu	Arg 55	Glu	Asp	Gly	Asp	Val 60	Val	Ile	Val	Val	
Phe 65	Asp	Ala	Lys	Ala	Pro 70	Ser	Phe	Arg	His	Gln 75	Thr	Tyr	Glu	Ala	Tyr 80	
Lys	Ala	Gly	Arg	Ala 85	Pro	Thr	Pro	Glu	Asp 90	Phe	Pro	Arg	Gln	Leu 95	Ala	
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Pro	Gly	Phe 115	Glu	Ala	Asp	Asp	Val 120	Leu	Ala	Thr	Leu	Ala 125	Lys	Lys	Ala	
Glu	Lys 130	Glu	Gly	Tyr	Glu	Val 135	Arg	Ile	Leu	Thr	Ala 140	Asp	Arg	Asp	Leu	
Tyr 145	Gln	Leu	Leu	Ser	Glu 150	Arg	Ile	Ser	Ile	Leu 155	His	Pro	Glu	Gly	Tyr 160	

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Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Ala	Lys 205	Leu	Ile	Arg
Glu	Trp 210	Gly	Ser	Leu	Glu	Asn 215	Leu	Leu	Lys	His	Leu 220	Glu	Gln	Val	Lys
Pro 225	Ala	Ser	Val	Arg	Glu 230	Lys	Ile	Leu	Ser	His 235	Met	Glu	Asp	Leu	Lys 240
Leu	Ser	Leu	Glu	Leu 245	Ser	Arg	Val	His	Thr 250	Asp	Leu	Leu	Leu	Gln 255	Val
Asp	Phe	Ala	Arg 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Lys 270	Ala	Phe
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Ser 290	Pro	Val	Ala	Ala	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Ala
Asp	Pro	Leu	Ala 340	Gly	Leu	Lys	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Ser	Arg	Glu	Gly	Leu 365	Asp	Leu	Val
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Gly	Pro	Ser	Asn
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Asp	Ala	Ala	His	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	His	Arg	Asn 415	Leu

ьeu	гуз	Arg	420	GIU	GIY	GIU	GIU	425	пец	ьец	irp	ьец	430	nis	GIU
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Gln	Ala	Leu	Ser 460	Leu	Glu	Leu	Ala
Glu 465	Glu	Ile	Arg	Arg	Leu 470	Glu	Glu	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480
Pro	Phe	Asn	Leu	Asn 485	Ser	Arg	Asp	Gln	Leu 490	Glu	Arg	Val	Leu	Phe 495	Asp
Glu	Leu	Arg	Leu 500	Pro	Ala	Leu	Lys	Lys 505	Thr	Lys	Lys	Thr	Gly 510	Lys	Arg
Ser	Thr	Ser 515	Ala	Ala	Val	Leu	Glu 520	Ala	Leu	Arg	Glu	Ala 525	His	Pro	Ile
Val	Glu 530	Lys	Ile	Leu	Gln	His 535	Arg	Glu	Leu	Thr	Lys 540	Leu	Lys	Asn	Thr
Tyr 545	Val	Asp	Pro	Leu	Pro 550	Ser	Leu	Val	His	Pro 555	Arg	Thr	Gly	Arg	Leu 560
His	Thr	Arg	Phe	Asn 565	Gln	Thr	Ala	Thr	Ala 570	Thr	Gly	Arg	Leu	Ser 575	Ser
Ser	Asp	Pro	Asn 580	Leu	Gln	Asn	Ile	Pro 585	Val	Arg	Thr	Pro	Leu 590	Gly	Gln
Arg	Ile	Arg 595	Arg	Ala	Phe	Val	Ala 600	Glu	Ala	Gly	Trp	Ala 605	Leu	Val	Ala
Leu	Asp 610	Tyr	Ser	Gln	Ile	Glu 615	Leu	Arg	Val	Leu	Ala 620	His	Leu	Ser	Gly
Asp 625	Glu	Asn	Leu	Ile	Arg 630	Val	Phe	Gln	Glu	Gly 635	Lys	Asp	Ile	His	Thr 640
Gln	Thr	Ala	Ser	Trp 645	Met	Phe	Gly	Val	Pro 650	Pro	Glu	Ala	Val	Asp 655	Pro
Leu	Met	Ara	Ara	Ala	Ala	Lvs	Thr	Val	Asn	Phe	Glv	Val	Leu	Tvr	Gly

660 665 670

Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu 675 680 685

Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg 690 695 700

Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr Val
705 710 715 720

Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg
725 730 735

Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro $740 \hspace{1cm} 745 \hspace{1cm} 750$

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765

Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala 770 780

Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala 785 790 795 800

Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro 805 810 815

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Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

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Asp Glu Leu	Arg Leu 500	Pro Ala	Leu	Lys 505	Lys	Thr	Lys	Lys	Thr 510	Gly	Lys
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Leu His Thr	Arg Phe 565		Thr	Ala	Thr 570	Ala	Thr	Gly	Arg	Leu 575	Ser
Ser Ser Asp	Pro Asn 580	Leu Gln	Asn	Ile 585	Pro	Val	Arg	Thr	Pro 590	Leu	Gly
Gln Arg Ile	Arg Arg	Ala Phe	Val	Ala	Glu	Ala	Gly	Trp	Ala	Leu	Val

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Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His 625 635 635

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Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

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